

# FSP SOLAR POWERMANAGER HYBRID SERIES



Smart Energy for Smart Home

## 4KW-15KW

### FSP Solar PowerManager-Hybrid

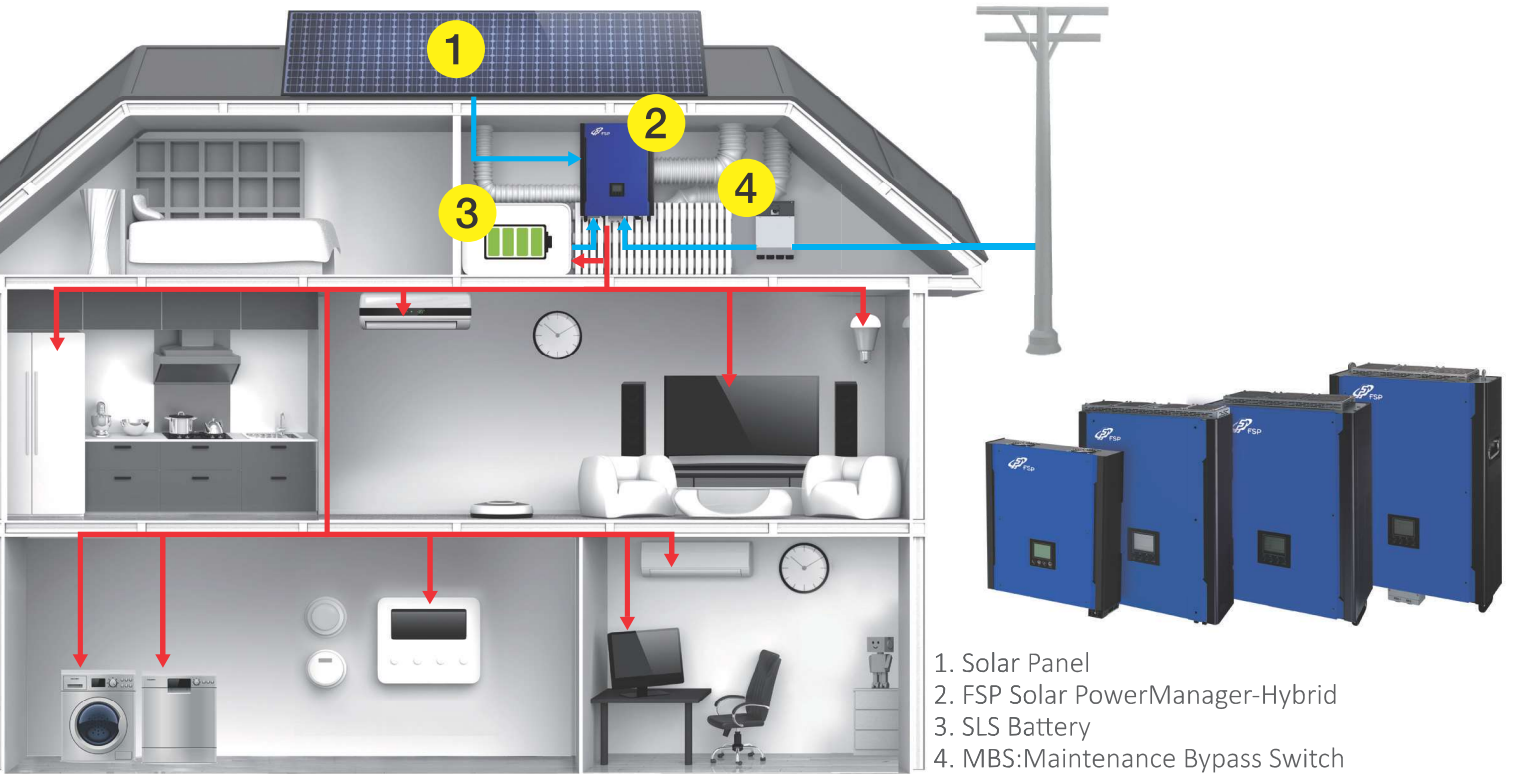
Offers a more intelligent power solution for our customers to reduce the energy bill and make a contribution to our homeland, to our earth. Your energy can be used as efficiently, as smart as possible under current power consumption environment.

#### YOUR ENERGY, YOU DECIDE!

By the unique optimum technology of FSP Solar PowerManager-Hybrid Series you can control whether or how to use your energy, to store the generated power into battery or feed into the grid. Moreover, if grid power failed, by the brilliant ability of FSP Solar PowerManager-Hybrid Series, the load will be handled smartly by direct support from solar, by combining solar & storage energy or withdrawing storage power only. Multiple communication methods for different applications: FSP Solar PowerManager-Hybrid Series implements USB, RS232 ports and also fits with intelligent slot for SNMP card monitoring or Modbus Card for smart meter compensation applicable to keep your electricity meter at zero. to stay your electricity meter at zero.

### GENERAL FEATURES

- Just ONE integrated design of Grid-tied & Off-Grid function
- Solar PowerManager-Hybrid implements AC I/P breaker and DC switch
- Solar Energy Storage
- Optimized Self-Consumption
- Load Dual-compensated: Solar & Storage Power or Grid & Storage Power
- Power securing during Grid Failure
- Back-up function
- Intuitive LCD Display
- SNMP, Modbus AS400 Support
- Certified VDE0126 & VDE4105
- 5kW&10kW Model Parallel function available, up to 6PC



## Multi-Operation Mode



### Solar Energy Multi-Use

Intelligent design adding more options to use Solar Energy: It is not just conventional PV inverter Feed-in function, the system with sufficient solar power will not only feed in grid, but also store energy and support loads.



### Self-Consumption

When Solar Energy is low e.g. at night, the FSP Solar PowerManager will automatically withdraw the power from Energy storage (Battery) without using power from utility; saving & reducing your energy bill.

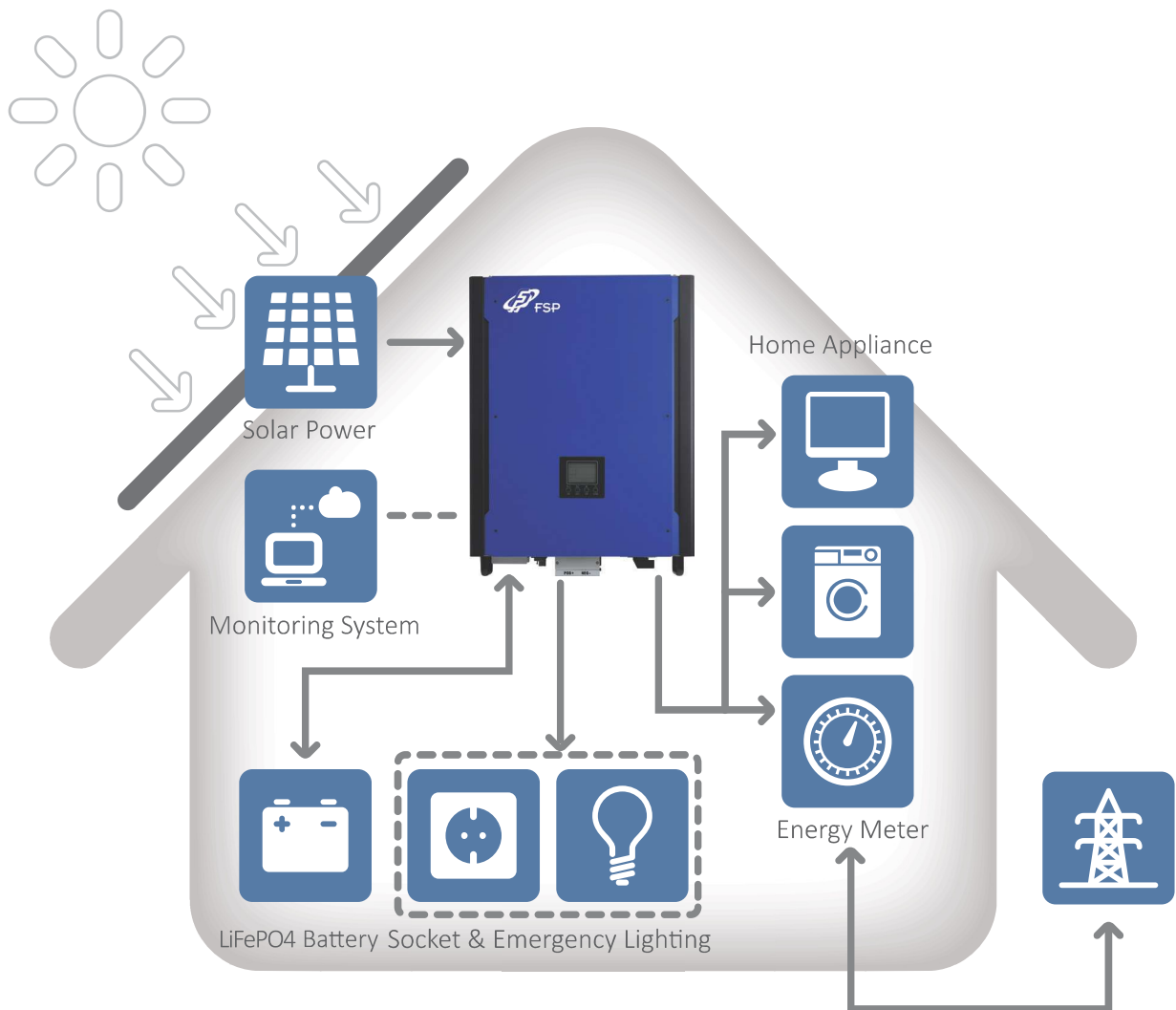


### Back-up Power when Grid Outage

FSP Solar PowerManager implements off-grid inverter function. If a utility failure or outage occurs, the system will switch to back-up mode and offer continuous power.

## Manage Your Own Power

FSP Solar PowerManager- Hybrid is an ingenious design unit. Product achieves tri-power source, Solar, Utility, and Battery Management.



### FSP Solar PowerManager-Hybrid Compensation Mode:

Modbus Card for smart meter compensation applicable to keep your electricity meter at zero. All the loads are connected with Grid FSP Solar PowerManager-Hybrid which is an auxiliary power. At daytime, Solar Power is sufficient to feed in grid and store energy at the same time. At nighttime, FSP Solar PowerManager-Hybrid will withdraw the power constantly from the battery providing energy to your home appliances in order to decrease your energy bill. If a utility outage occurs, FSP Solar PowerManager-Hybrid will generate the back-up power for emergency demand, e.g. lighting which is connected to the unit.

## TECHNICAL SPECIFICATIONS

| MODEL  | PowerManager-Hybrid 4kW<br>PIP40A0300             | PowerManager-Hybrid 5kW<br>PPF50A0200   | PowerManager-Hybrid 10kW<br>PPF10L0101  | PowerManager-Hybrid 15kW<br>PPF15L0101  |
|--|---|---|---|---|
| <b>PHASE</b>                                   | Single phase                                      | Single phase                            | 3-phase in / 3-phase out                | 3-phase in / 3-phase out                |
| MAXIMUM PV INPUT POWER                         | 5000W   | 10000W                                  | 14850W                                  | 22500W                                  |
| RATED OUTPUT POWER                             | 4000W   | 5000W                                   | 10000W                                  | 15000W                                  |
| MAXIMUM CHARGING POWER                         | 4000W   | 4800W                                   | 9600W                                   | 15000W                                  |
| <b>MAXIMUM CHARGING POWER</b>                  |   |   |   |   |
| <b>PV INPUT</b>                                |   |   |   |   |
| Nominal DC Voltage / Maximum DC Voltage        | 360VDC / 580VDC                                   | 720VDC / 900VDC                         | 720VDC / 900VDC                         | 720VDC / 900VDC                         |
| Start-up Voltage / Initial Feeding Voltage     | 116VDC / 150VDC                                   | 225VDC / 250VDC                         | 320VDC / 350VDC                         | 320VDC / 350VDC                         |
| MPP Voltage Range                              | 280VDC / 500VDC                                   | 250VDC / 850VDC                         | 400VDC / 800VDC                         | 400VDC / 800VDC                         |
| Number of MPP Trackers / Maximum Input Current | 1 / 1 x 18A                                       | 2 / 2 x 10A                             | 2 / 2 x 18.6A                           | 2 / 1 x 37.6A 1 x 18.6A                 |
| <b>GRID OUTPUT</b>                             |   |   |   |   |
| Nominal Output Voltage                         | 202/208/220/230/240VAC                            | 208/220/230/240VAC                      | 230VAC(P-N) / 400VAC(P-P)               | 230VAC(P-N) / 400VAC(P-P)               |
| Output Voltage Range                           | 184- 265 VAC*                                     | 184- 265 VAC*                           | 184-265 VAC* per phase                  | 184-265 VAC* per phase                  |
| Nominal Output Current                         | 17.5 A  | 21 A                                    | 14.5A per phase                         | 21.7A per phase                         |
| Power Factor                                   | > 0.99  |   |   |   |
| <b>EFFICIENCY</b>                              |   |   |   |   |
| Maximum Conversion Efficiency (DC/AC)          | 93 %  | 96 %                                    | 96 %                                    | 96 %                                    |
| European Efficiency@ Vnominal                  | 95 %  | 95 %                                    | 95 %                                    | 95 %                                    |
| <b>HYBRID / OFF-GRID OPERATION</b>             |   |   |   |   |
| <b>PV INPUT</b>                                |   |   |   |   |
| Nominal DC Voltage /Maximum DC Voltage         | 360VDC / 580VDC                                   | 720VDC / 900VDC                         | 720VDC / 900VDC                         | 720VDC / 900VDC                         |
| Start-up Voltage / Initial Feeding Voltage     | 116VDC / 150VDC                                   | 225VDC / 250VDC                         | 320VDC / 350VDC                         | 320VDC / 350VDC                         |
| MPP Voltage Range                              | 280VDC / 500VDC                                   | 250VDC / 850VDC                         | 400VDC / 800VDC                         | 350VDC / 850VDC                         |
| Number of MPP Trackers / Maximum Input Current | 1/1 x 18A   | 2/2 x 10A                               | 2/2 x 18.6A                             | 2/1 x 37.6A 1 x 18.6A                   |
| <b>GRID OUTPUT</b>                             |   |   |   |   |
| Nominal Output Voltage                         | 202/208/220/230/240VAC                            | 230VAC(P-N) / 400VAC(P-P)               | 230VAC(P-N) / 400VAC(P-P)               | 230VAC (P-N)/ 400VAC(P-P)               |
| Output Voltage Range                           | 184- 264.5 VAC*                                   | 184-264.5 VAC* per phase                | 184-264.5 VAC* per phase                | 180 VAC * per phase                     |
| Nominal Output Current                         | 17.5 A  | 21 A                                    | 14.5A per phase                         | 21.7A per phase                         |
| <b>AC INPUT</b>                                |   |   |   |   |
| AC Start-up Voltage/Auto Restart Voltage       | 120- 140 VAC / 180 VAC                            | 120-140VAC per phase / 180VAC per phase | 120-140VAC per phase / 180VAC per phase | 120-140VAC per phase / 180VAC per phase |
| Acceptable Input Voltage Range                 | 170- 280 VAC                                      | 170-280 VAC per phase                   | 170-280 VAC per phase                   | 170-280VAC per phase                    |
| Maximum AC Input Current                       | 40 A  | 40 A                                    | 40 A                                    | 40 A                                    |
| <b>BATTERY MODE OUTPUT</b>                     |   |   |   |   |
| Nominal Output Voltage                         | 202/208/220/230/240VAC                            | 230VAC(P-N) / 400VAC(P-P)               | 230VAC(P-N) / 400VAC(P-P)               | 230VAC(P-N) / 400VAC(P-P)               |
| Efficiency (DC to AC)                          | 92%   | 93%                                     | 91%                                     | 91%                                     |
| <b>BATTERY &amp; CHARGER</b>                   |   |   |   |   |
| Nominal DC Voltage                             | 48 VDC  |   |   |   |
| Maximum Charging Current                       | 80 A  | Default 60A, 5A-100A (Adjustable)       | Default 60A, 10A-200A (Adjustable)      | Default 60A 5A-300A (adjustable)        |
| <b>GENERAL</b>                                 |   |   |   |   |
| <b>PHYSICAL</b>                                |   |   |   |   |
| Dimension, D x W x H (mm)                      | 117 x 438 x 535                                   | 204.2 x 460 x 600                       | 167.5 x 500 x 622                       | 219 x 650 x 820                         |
| Net Weight (kgs)                               | 16.2  | 29                                      | 45                                      | 62                                      |
| <b>INTERFACE</b>                               |   |   |   |   |
| Communication Port                             | RS-232/USB and CAN Interface                      |   |   |   |
| Intelligent Slot                               | Optional SNMP, Modbus, and AS-400 cards available |   |   |   |
| <b>ENVIRONMENT</b>                             |   |   |   |   |
| Humidity                                       | 0%- 95% RH (No condensing)                        |   |   |   |
| Ingress Protection Rating                      | IP20  |   |   |   |
| Cooling system                                 | AirForce cooling                                  |   |   |   |
| Operating Temperature                          | 0 to 40°C   | -10 to 55°C                             | -10 to 55°C                             | -10 to 55°C                             |
| Altitude                                       | 0 ~ 1000 m** Max2000m                             |   |   |   |

These figures may vary depending on different AC voltage and country requirements.  
Power derating 1% every 100 m when altitude is over 1000m.  
The above efficiency are tested in laboratory facilities and environmental conditions  
Product specifications are subject to change without further notice